

Executive Summary

The objective of business incubation is to encourage, promote, stimulate, and support research and development (R&D) activity through the use of different investments leading to commercialization of new products and services by small businesses. Business incubators can provide significant benefits by helping to create successful businesses that generate wealth and job opportunities to their regions and states. It is important to assess the economic impacts of incubators to understand their outcomes and provide support for increased activities. It provides decision makers with a better understanding of the state's capacity for incubators and the potential to realize further economic development outcomes from increased investment in incubation.

During the period of April to September 2007, the Maryland Technology Development Corporation (TEDCO) commissioned RTI International to perform an economic impact assessment of Maryland's technology incubators and analyze the state's capacity for additional technology-based incubators. RTI also investigated barriers faced by incubator-graduate companies and researched effective policies to mitigate these barriers.

Maryland currently has 18 technology incubators that were included in this report, as well as 4 proposed incubator projects. Current clients and graduates of these incubators felt, on average, that their incubator experience was very important to their companies, giving it a rating of 3.1–3.2 on a scale of 0 (not at all important) to 4 (extremely important). While both current clients and graduates rated the majority of incubator services as very important, the most important service provided by the incubators for both groups of respondents was affordable, functional space.

The economic impact analysis measures the total impact of Maryland's technology incubators using a regional macroeconomic impact model called IMPLAN. Survey data show that incubator firms employed 5,374 employees in 2006 and indirectly added another 8,670 jobs through economic interactions with other Maryland industries and households. They also generated approximately \$1.2 billion in gross state product and \$100 million in state and local taxes. RTI also used an exploratory econometric analysis to evaluate the impact estimates coming from the IMPLAN model. This analysis confirmed that the IMPLAN

results were within the reasonable range suggested by historical relationships between incubator establishment and economic activity. The analysis also shows that graduates and incubator tenants are associated with industries that generate a greater number of indirect economic benefits than do other industries in the Maryland economy.

To assess the relationships between TEDCO incubator funding and economic impact analysis, RTI examined a single-year funding (FY2006) and compared it to economic data from the regional impact model.

RTI's analysis also found that Maryland has the potential to support additional high-tech incubators. While the findings from the data analysis, client surveys, and interviews do not constitute a feasibility study for new high-tech incubators in Maryland, these findings are useful to supplement the established and effective feasibility study process that TEDCO has in place for potential new technology incubators. Maryland has a strong technology economy, a wealth of research centers and technology generators, a strong concentration of high-tech employment, and exceptional political support for incubation, suggesting a solid foundation for additional technology incubators in the state.

However, the state's capacity for niche incubators in regenerative medicine and alternative energy is not as clear. While providing a definitive answer on whether Maryland can or should invest in niche incubators is beyond the scope of this report, it is possible to comment on the circumstances in which such an incubator would exist. While the state has supported programs and initiatives in these industries, there is not a strong concentration of either of these industries in the state. More importantly, interviews with incubator managers and stakeholders, who collectively constitute a vast pool of knowledge concerning technology incubators, revealed widespread skepticism toward the idea of niche incubators in any industry, not just those investigated in this report. On the other hand, an alternative proposal to establish focus areas in these industries within other technology incubators has stronger potential for success and acceptance.

Assisting incubator companies once they graduate is another important issue to consider. Post-incubator assistance could potentially help companies remain successful and further contribute to Maryland's economy as the businesses grow over time. Survey and interview findings indicate that locating suitable space is the most pressing issue for graduate companies, especially those in the life sciences. This concern could be addressed through the creation of business accelerators that include wet lab space or through the establishment of grant funds or loan programs to assist companies in customizing their own space after graduation from the incubator.

Overall, the survey and interview results indicated that incubator clients and stakeholders were very pleased with TEDCO's services. Most thought it important for TEDCO to continue its existing operations with its current high level of efficiency and effectiveness, and any additional programs should be structured so as not to reduce its ability to execute current programs.

The key results and findings are summarized below.

- Tenants and graduates of the technology incubators have found their incubator experiences to be very important to their companies, giving them an average rating of 3.1–3.2 on a scale of 0 (not at all important) to 4 (extremely important).
- Maryland has the potential to support new high-tech incubators, as evidenced by the state's strong high-tech economy, abundant research, concentration in high-tech employment, and exceptional political support.
- Maryland's potential for new niche incubators in regenerative medicine and alternative energy is not clear, as a variety of conflicting factors are at play in the state. However, there is greater support for creating focus areas in these industries within other technology incubators.
- The state can assist incubator graduates, especially those in the life sciences, by creating business accelerators that include wet lab space and/or establishing grant or loan programs to assist companies in customizing their own post-incubator space.

Key Data Points Resulting From the Impact Analysis:

Incubator Firms in 2006:

- Employed 14,044 employees in the state (5,374 direct employees and 8,670 indirect employees)
- These jobs contributed \$845 million in annual salary and benefits to Maryland households
- Gross state product contributions totaled \$1.2 billion
- Increased state output by \$2.7 billion per year
- Contributed \$104 million in state and local taxes.

Incubators in Maryland:

- 18 technology incubators in operation comprising 453,061 square feet
- 4 proposed technology incubators

Future Implications:

- Maryland has a strong high-tech industry, with over 15,000 establishments employing almost 200,000 in 2006.
- The average annual pay for high-tech jobs is \$75,000, more than 60% higher than the statewide average annual wage of \$46,000.
- The high-tech industry in Maryland overall has a location quotient of 1.54, indicating that employment in high-tech industries in Maryland is more highly concentrated than in other states in the nation. (An LQ between 0.75 and 1.25 is interpreted to mean that employment is similar to the national average. An LQ above 1.25 indicates concentration).
- The three most concentrated industries are management, scientific, and technical consulting services (LQ = 3.01); computer systems design and related services (LQ = 2.33); and communications equipment manufacturing (LQ = 2.06).

- Academic R&D totaled \$2.36 billion in 2005. This is the fourth highest in the nation and surpasses North Carolina, Massachusetts and Virginia.
- There are over 40 research centers in Maryland, including a significant presence of federal labs and prominent university institutes.
- Taken together, these facts provide the state with a strong foundation for additional technology incubator growth.

This Study:

- 359 incubator clients and graduates from 18 incubators supported by TEDCO were surveyed.
- The survey had an overall response rate of 45%.